What is claimed is:

1. A method of inhibiting a cell membrane-mediated effect, the method comprising:

(a) identifying a vertebrate subject as having been, as likely to have been, or as likely to be, exposed to an infectious microorganism, wherein the infectious microorganism, or a microbial factor associated with the infectious microorganism, has a cell membrane-mediated effect on a vertebrate cell, the cell membrane-mediated effect being associated with a pathological condition of the vertebrate subject; and

(b) administering to the vertebrate subject an isolated glycerol-based compound that (i) inhibits the cell membrane-mediated effect and (ii) comprises a structure selected from the group consisting of:

CH_2R1 and CH_2OH
| |
CHR2 CHR3
| |
CH_2R3 CH_2OH

wherein R1 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$,

R2 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$, and

R3 is: $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$.

2. The method of claim 1, wherein the cell membrane-mediated effect comprises facilitation of entry of the infectious microorganism into the cell.

3. The method of claim 1, wherein the cell membrane-mediated effect results in activation of the vertebrate cell.

4. The method of claim 3, wherein activation of the vertebrate cell increases synthesis or secretion by the vertebrate cell of mediators that enhance inflammation in the subject or enhance infection of the subject by the infectious microorganism.

5. The method of claim 1, wherein the cell membrane-mediated effect results in lysis of the vertebrate cell.

6. The method of claim 1, wherein the glycerol-based compound inhibits the cell membrane-mediated effect by the induction of apoptosis in the vertebrate cell.

7. The method of claim 1, wherein the glycerol-based compound inhibits the cell membrane-mediated effect caused by the induction of cellular anergy in the vertebrate cell.

8. The method of claim 1, wherein the vertebrate cell is an epithelial cell.

9. The method of claim 8, wherein the epithelial cell is a vaginal cell.

10. The method of claim 1, wherein the vertebrate cell is a red blood cell (RBC).

11. The method of claim 1, wherein the vertebrate cell is a lymphocyte.

12. The method of claim 11, wherein the lymphocyte is a T cell.

13. The method of claim 11, wherein the lymphocyte is a B cell.

14. The method of claim 1, wherein the infectious microorganism is a bacterium.

15. The method of claim 14, wherein the bacterium is *Staphylococcus*.

16. The method of claim 15, wherein the *Staphylococcus* is *Staphylococcus aureus*.

17. The method of claim 14, wherein the bacterium is *Neisseria*.

18. The method of claim 17, wherein the *Neisseria* is *Neisseria gonorrheae*.

19. The method of claim 14, wherein the bacterium is a *Streptococcus*.

20. The method of claim 19, wherein the *Streptococcus* is *Streptococcus pyogenes*.

21. The method of claim 14, wherein the bacterium is *Bacillus*.

22. The method of claim 21, wherein the bacterium is *Bacillus anthracis*.

23. The method of claim 14, wherein the bacterium is *Clostridium*.

24. The method of claim 23, wherein the bacterium is *Clostridium perfringens*.

25. The method of claim 14, wherein the bacterium is *Chlamydia trachomatis*.

26. The method of claim 14, wherein the bacterium is selected from the group consisting of *Gardnerella vaginalis*, *Haemophilus ducreyi*, and *Treponema pallidum*.

27. The method of claim 1, wherein the infectious microorganism is a virus.

28. The method of claim 27, wherein the virus is Herpes Simplex Virus (HSV).

29. The method of claim 27, wherein the virus is Human Papilloma Virus (HPV).

30. The method of claim 1, wherein the infectious microorganism is a protozoan.

31. The method of claim 30, wherein the protozoan is *Trichomonas vaginalis*.

32. The method of claim 1, wherein the infectious microorganism is a fungus.

33. The method of claim 32, wherein the fungus is *Candida albicans*.

34. The method of claim 1, wherein the subject is human.

35. A method of inhibiting a cell-membrane mediated effect, the method comprising:

(a) identifying a vertebrate subject as having been, as likely to have been, or likely to be exposed to a factor that has cell-mediated effect on a vertebrate cell, wherein the cell-mediated effect can result in a pathologic condition in the vertebrate subject; and

(b) administering to the subject an isolated glycerol based compound that (i) inhibits the cell membrane-mediated effect on the vertebrate cell by the factor and (ii) comprises a structure selected from the group consisting of:

CH_2R1 and CH_2OH
| |
CHR2 CHR3
| |
CH_2R3 CH_2OH

wherein R1 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$,

R2 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$, and

R3 is: $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$.

36. The method of claim 35, wherein the factor is a microbial factor associated with an infectious microorganism.

37. The method of claim 36, wherein the cell membrane-mediated effect comprises facilitation of entry of the infectious microorganism into the vertebrate cell.

38. The method of claim 35, wherein the cell membrane-mediated effect results in activation of the vertebrate cell.

39. The method of claim 38, wherein activation of the vertebrate cell increases synthesis or secretion by the vertebrate cell of mediators that enhance inflammation in the subject or enhance infection of the subject by the infectious microorganism.

40. The method of claim 35, wherein the cell membrane-mediated effect results in lysis of the vertebrate cell.

41. The method of claim 35, wherein the glycerol-based compound inhibits the cell membrane-mediated effect by the induction of apoptosis in the vertebrate cell.

42. The method of claim 35, wherein the glycerol-based compound inhibits the cell membrane-mediated effect by the induction of cellular anergy in the vertebrate cell.

43. The method of claim 35, wherein the factor is an exotoxin.

44. The method of claim 43, wherein the exotoxin is a hemolysin.

45. The method of claim 43, wherein the exotoxin is a superantigen.

46. The method of claim 44, wherein the hemolysin is selected from the group consisting of: α-hemolysin, streptolysin O, streptolysin S, pneumolysin, listerolysin, perfringolysin, and *Bacillus anthracis* hemolysin.

47. The method of claim 43, wherein the exotoxin is selected from the group consisting of toxic shock syndrome toxin-1, Streptococcal pyrogenic exotoxin, Staphylococcal enterotoxin, A-B toxins, Diptheria exotoxin, Cholera exotoxin, Pertussis exotoxin, Shiga toxin, Shiga-like toxin, anthrax toxin, Botulinal exotoxin, Tetanus exotoxin, tracheal cytotoxin, Helicobacter toxins, alpha toxin from *Clostridium perfringens* (lecithinase), kappa toxin (collagenase), mu toxin (hyaluronidase), leukocidin, elastase, and Staphylococcal α-hemolysin.

48. The method of claim 35, wherein the vertebrate cell is an epithelial cell.

49. The method of claim 48, wherein the epithelial cell is a vaginal cell.

50. The method of claim 35, wherein the vertebrate cell is an RBC.

51. The method of claim 35, wherein the vertebrate cell is a lymphocyte.

52. The method of claim 51, wherein the lymphocyte is a T cell.

53. The method of claim 51, wherein the lymphocyte is a B cell.

54. The method of claim 35, wherein the pathological condition is psoriasis.

55. The method of claim 35, wherein the pathological condition is atopic dermatitis.

56. The method of claim 35, wherein the pathological condition comprises skin papules or pustules.

57. The method of claim 35, wherein the pathological condition is selected is selected from the group consisting of: toxic shock syndrome, pneumonia, bacteremia in association with cutaneous infection, deep soft tissue infection, meningitis, peritonitis, osteomyelitis, septic arthritis, postpartum sepsis, neonatal sepsis, endotoxemias, and exotoxemias, and food poisoning.

58. An *in vitro* method of inhibiting a cell-membrane-mediated effect, the method comprising:

(a) culturing a vertebrate cell with (i) an infectious microorganism that has a cell membrane-mediated effect on the vertebrate cell, or that elicits the production in the culture of a vertebrate mediator that has the cell membrane-mediated effect on the vertebrate cell; or (ii) a microbial factor that causes the cell membrane-mediated effect on the vertebrate cell; and

(b) before, simultaneous with, or after step (a), contacting the vertebrate cell with an isolated glycerol-based compound that (i) inhibits the cell membrane-mediated effect on vertebrate cells and (ii) comprises a structure selected from the group consisting of:

CH_2R1 and CH_2OH
| |
CHR2 CHR3
| |
CH_2R3 CH_2OH

wherein R1 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$,

R2 is: OH; $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$, and

R3 is: $CO(CH_2)_8CH_3$; $CO(CH_2)_9CH_3$; $CO(CH_2)_{10}CH_3$; $CO(CH_2)_{11}CH_3$; $CO(CH_2)_{12}CH_3$; $O(CH_2)_9CH_3$; $O(CH_2)_{10}CH_3$; $O(CH_2)_{11}CH_3$; $O(CH_2)_{12}CH_3$; or $O(CH_2)_{13}CH_3$.

59. The method of claim 58, wherein the cell membrane-mediated effect results in activation of the vertebrate cell.

60. The method of claim 58, wherein the cell membrane-mediated effect comprises facilitation of entry of an infectious microorganism into the vertebrate cell.

61. The method of claim 59, wherein activation of the vertebrate cell increases synthesis or secretion by the vertebrate cell of mediators that enhance inflammation in the subject or enhance infection of the subject by the infectious microorganism.

62. The method of claim 58, wherein the cell membrane-mediated effect results in lysis of the vertebrate cell.

63. The method of claim 58, wherein the glycerol-based compound inhibits the cell membrane-mediated effect by the induction of apoptosis in the vertebrate cell.

64. The method of claim 58, wherein the glycerol-based compound inhibits the cell membrane-mediated effect by the induction of cellular anergy in the vertebrate cell.

65. The method of claim 58, wherein the factor is an exotoxin.

66. The method of claim 65, wherein the exotoxin is a hemolysin.

67. The method of claim 65, wherein the exotoxin is a superantigen.

68. The method of claim 66, wherein the hemolysin is selected from the group consisting of: α-hemolysin, streptolysin O, streptolysin S, pneumolysin, listerolysin, perfringolysin, and *Bacillus anthracis* hemolysin.

69. The method of claim 65, wherein the exotoxin is selected from the group consisting of toxic shock syndrome toxin-1, Streptococcal pyrogenic exotoxin, Staphylococcal enterotoxins, A-B toxins, Diptheria exotoxin, Cholera exotoxin, Pertussis exotoxin, Shiga toxin, Shiga-like toxin, anthrax toxin, Botulinal exotoxin, Tetanus exotoxin, tracheal cytotoxin, Helicobacter toxin, alpha toxin (lecithinase), kappa toxin (collagenase), mu toxin (hyaluronidase), leukocidin, elastase, and Staphylococcal α-hemolysin.

70. The method of claim 58, wherein the vertebrate cell is an epithelial cell.

71. The method of claim 70, wherein the epithelial cell is a vaginal cell.

72. The method of claim 58, wherein the vertebrate cell is an RBC.

73. The method of claim 58, wherein the vertebrate cell is a lymphocyte.

74. The method of claim 73, wherein the lymphocyte is a T cell.

75. The method of claim 73, wherein the lymphocyte is a B cell.

76. The method of claim 58, wherein the infectious microorganism is a bacterium.

77. The method of claim 76, wherein the bacterium is a *Staphylococcus.*

78. The method of claim 77, wherein the *Staphylococcus* is *Staphylococcus aureus.*

79. The method of claim 76, wherein the bacterium is a *Neisseria.*

80. The method of claim 79, wherein the *Neisseria* is *Neisseria gonorrheae*.

81. The method of claim 76, wherein the bacterium is a *Streptococcus*.

82. The method of claim 81, wherein the *Streptococcus* is *Streptococcus pyogenes*.

83. The method of claim 76, wherein the bacterium is *Bacillus*.

84. The method of claim 83, wherein the *Bacillus* is *Bacillus anthracis*.

85. The method of claim 76, wherein the bacterium is *Clostridium*.

86. The method of claim 85, wherein the *Clostridium* is *Clostridium perfringens*.

87. The method of claim 76, wherein the bacterium is *Chlamydia trachomatis*.

88. The method of claim 76, wherein the bacterium is selected from the group consisting of *Gardnerella vaginalis*, *Haemophilus ducreyi*, and *Treponema pallidum*.

89. The method of claim 58, wherein the infectious microorganism is a virus.

90. The method of claim 89, wherein the virus is Herpes Simplex Virus (HSV).

91. The method of claim 89, wherein the virus is Human Papilloma Virus (HPV).

92. The method of claim 58, wherein the infectious microorganism is a protozoan.

93. The method of claim 92, wherein the protozoan is *Trichomonas vaginalis*.

94. The method of claim 58, wherein the infectious microorganism is a fungus.

95. The method of claim 94, wherein the fungus is *Candida albicans*.

96. The method of claim 58, wherein the subject is a human.